



CABINETMAKING/MILLWORK

Cabinetmaking

The third instructional course in a sequence of courses that prepares individuals to apply technical knowledge and skills to set up and operate industrial woodworking machinery, and to use such machinery to design and fabricate custom cabinets and architectural millwork. It stresses the safe use of trade hand and power tools and machinery used in the production of millwork items. Cabinets, such as kitchen and vanities are constructed, finished, and installed as part of this program.

CABINETMAKING

Levels:	Grades 10-12
Units of Credit:	Minimum 0.5
CIP Code:	48.0703
11 Digit Code:	40-10-00-00-020
11 Digit DE Code:	40-10-00-13-020
Test #:	524
License:	CTE/Secondary
Endorsement:	Cabinetmaking/Millwork
Prerequisite:	Woodworking, Furniture Design & Manufacturing

CORE STANDARDS, OBJECTIVES, AND INDICATORS

STANDARD
480703-01 **Students will be able to understand the cabinetmaking industry.**

OBJECTIVES

- 480703-0101 Identify career opportunities in cabinetmaking/millwork manufacturing.
- 480703-0102 Identify career opportunities in related millwork industries.
- 480703-0103 Describe the integration of cabinetmaking into construction schedules.

STANDARD
480703-02 **Students will be able to understand the design, planning and estimation process.**

OBJECTIVES

- 480703-0201 Identify elements and principles of design as they apply to kitchen cabinets.
- U-shape
 - Peninsula
 - Corridor
 - L-shape
 - Work triangle
- 480703-0202 Draw the necessary views of a selected project.
- 480703-0203 Create a material list for the selected project and determine the project cost.
- 480703-0204 Create a procedure list for construction of a cabinet.
- 480703-0205 Extract pertinent cabinet information and specifications from house plans.
- 480703-0206 Identify cabinet standards relating to kitchen, vanity, and commercial type cabinets (quality standards, dimension standards, etc.).

**STANDARD
480703-03**

Students will be able to understand and demonstrate safe practices.

OBJECTIVES

- 480703-0301 Demonstrate the ability to work safely in a cabinet shop following general safety rules.
- 480703-0302 Demonstrate the safe use of woodworking tools and machines.
- 480703-0303 Demonstrate how to handle and store materials according to MSDS sheets.
- 480703-0304 Pass a written safety test with a score of 100 percent.

**STANDARD
480703-04**

Students will be able to understand and demonstrate the safe use of hand tools.

OBJECTIVES

- 480703-0401 Describe the purpose and demonstrate the proper use of measuring and layout tools.
- | | | |
|----------------|----------------|--------------------|
| Measuring Tape | Scratch awl | Combination square |
| Try Square | Framing Square | Sliding T-bevel |
| Tammel points | Compass | Stud finder |
| Scribe | | |
- 480703-0402 Describe the purpose and demonstrate the proper use of cutting and shaping tools
- | | | |
|---------------|----------------|-------------|
| Utility knife | Back saw | Block plane |
| Wood chisel | Wood file/rasp | Hand saw |
| Jack plane | Glue scraper | Putty knife |
- 480703-0403 Describe the purpose and demonstrate the proper use of striking tools.
- | | | |
|------------------|----------|---------------|
| Claw hammer | Nail set | Rubber mallet |
| Dead-blow hammer | | |
- 480703-0404 Describe the purpose and demonstrate the proper use of drill bits.
- | | | |
|--------------|--|----------------|
| Twist | Forstner | Spade |
| Countersink | Hole saw | Multi spur bit |
| Hogging tool | Driver bits: Phillips, Square, slotted | |

**STANDARD
480703-05**

Students will be able to understand and demonstrate the safe use of portable power tools.

OBJECTIVES

- 480703-0501 Describe the purpose and demonstrate the proper use of routers.
- 480703-0502 Describe the purpose and demonstrate the proper use of reciprocal or circular saws.
- 480703-0503 Describe the purpose and demonstrate the proper use of a biscuit jointer.

- 480703-0504 Describe the purpose and demonstrate the proper use of a power plane.
- 480703-0505 Describe the purpose and demonstrate the proper use of power drills and drivers.
- 480703-0506 Describe the purpose and demonstrate the proper use of pneumatic tools.
- 480703-0507 Describe the purpose and demonstrate the proper use of the following portable power tools:
- Pneumatic nailer
 - Power drills
 - Router
 - Finish sander
 - Belt sander
 - Orbital sander
 - Biscuit jointer
 - Hand jig saw
 - Power plane
 - Circular saw
 - Reciprocal saw

**STANDARD
480703-06** **Students will be able to understand and demonstrate the safe use of power machines.**

OBJECTIVES

- 480703-0601 Describe the purpose and demonstrate the proper use of the following sawing machines:
Table saw Power miter saw Radial arm saw
Band saw
- 480703-0602 Describe the purpose and demonstrate the proper use of the following surfacing machines:
Surface planer Jointer
- 480703-0603 Describe the purpose and demonstrate the proper use of the following sanding machines:
Disc sander Surface sander Spindle sander
- 480703-0604 Describe the purpose and demonstrate the proper use of the following shaping machines:
Router table Shaper
- 480703-0605 Describe the purpose and demonstrate the proper use of the following drilling and turning machines:
Drill press Lathe Line boring machine

**STANDARD
480703-07** **Students will be able to understand wood products, characteristics, and procedures.**

OBJECTIVES

- 480703-0701 Describe the parts of a tree and the significance that it has in cabinet construction.
- Bark

- Sap wood
 - Pith
 - Annual (growth) rings
- 480703-0702 Describe and know how natural defects.
 - Warp
 - Cracks
 - Bark inclusions
 - Knots
- 480703-0703 Demonstrate a knowledge of the seasoning and drying of lumber.
- 480703-0704 Distinguish between softwoods and hardwoods.
- 480703-0705 Identify the differences between solid wood and manmade goods and describe the use of each.
- 480703-0706 Identify wood species and list the species most suited for cabinet construction.
- 480703-0707 Identify the common grades of lumber and sheet goods.
 - FAS
 - Select
 - #1COM
- 480703-0708 Properly store material.

STANDARD 480703-08 **Students will be able to understand and demonstrate basic math and measuring concepts.**

OBJECTIVES

- 480703-0801 Calculate the cost of a project.
- 480703-0802 Demonstrate the optimization of materials.
- 480703-0803 Demonstrate basic woodworking math proficiency.
- 480703-0804 Multiply two-digit numbers.
- 480703-0805 Calculate board feet and square feet.
- 480703-0806 Read and measure with a tape using sixteenths (1/16).

STANDARD 480703-09 **Students will be able to understand and demonstrate the use of fasteners and adhesives.**

OBJECTIVES

- 480703-0901 Identify the various woodworking fasteners and the application of each.
 - Nails
 - Screws
 - Staples
 - Conformat screws
 - Bolts
- 480703-0902 Identify the different adhesives and preferred use of each.
 - Yellow glue
 - Polyurethane glue
 - Cyanoacrylate
 - Contact cement

480703-0903 Identify the different types of clamps.

- Bar
- “C”
- Spring
- Band
- Handscrew.

STANDARD
480703-10 **Students will be able to understand and demonstrate the use of joinery.**

OBJECTIVES

480703-1001 Identify the basic wood joints used in furniture making.

- Butt
- Miter
- Rabbet
- Dado
- Spline
- Mortise and tenon
- Dovetail
- Groove (plough)
- Lap
- Pocket
- Blind dado

480703-1002 Construct the basic wood joints used in cabinetmaking.

STANDARD
480703-11 **Students will be able to understand and demonstrate the use of cabinet components and hardware.**

OBJECTIVES

480703-1101 Identify the parts of traditional and European cabinets.

- Stile
- Rail
- Mullion
- Base
- Toe kick
- Side
- Skin
- Shelf
- Web frame
- Kicker
- Drawer guide/glide
- Nailer
- Molding
- Filler strip
- Edge banding
- Bottom

- 480703-1102 Identify basic construction methods.
- 480703-1103 Identify the door options in cabinetmaking.
- 480703-1104 Identify the components of a drawer.
- 480703-1105 Identify and properly install common cabinet/furniture hardware such as:
 - Hinges - offset, overlay, European, butt, lip
 - Drawer guides,
 - Pulls and knobs,
 - Shelf supports.
- 480703-1106 Assemble a cabinet with the proper adhesive and fasteners.
- 480703-1107 Layout and construct cabinet doors.
- 480703-1108 Cut out and construct drawers.
- 480703-1109 Install door and drawer.
- 480703-1110 Identify basic construction methods.
 - Frame and panel
 - Casework construction

STANDARD **Students will be able to understand and demonstrate finishing, installation, and transportation techniques**
480703-12

OBJECTIVES

- 480703-1201 Understand and properly apply the basic rules of sanding.
- 480703-1202 Select and correctly use each specified grit size.
- 480703-1203 Properly prepare a surface for Finishing.
- 480703-1204 Properly apply stain, penetrating oil, and/or a clear finish
- 480703-1205 Properly spray a clear coat.
- 480703-1206 Understand basic cabinet installation techniques such as scribing, leveling, and shimming.

PROFESSIONAL DEVELOPMENT

STANDARD **Students will understand the need for professional development.**
480703-13

OBJECTIVES

- 480703-1301 Complete a personal inventory.
- 480703-1302 Set and meet goals.
- 480703-1303 Be self-motivated.
- 480703-1304 Know how to make decisions.
- 480703-1305 Know how to manage time.
- 480703-1306 Organize personal belongings and lab equipment.
- 480703-1307 Learn to communicate verbally.
- 480703-1308 Write effective communications.
- 480703-1309 Establish a personal reading program.

- 480703-1310 Develop effective work skills and attitudes.
480703-1311* Master a working knowledge of SkillsUSA.
- State the SkillsUSA motto.
 - State the SkillsUSA creed.
 - Learn the SkillsUSA colors.
 - Describe the official SkillsUSA dress.
 - Describe the procedure for becoming a SkillsUSA officer.

STANDARD **Students will understand the need for leadership skills.**
480703-14

OBJECTIVES

- 480703-1401 Serve on a committee.
480703-1402 Prepare an agenda.
480703-1403 Assist in planning a meeting.
480703-1404 Review basic parliamentary procedure.
- Make a main motion.
- 480703-1405 Participate in a school project.
480703-1406 Attend a community meeting.
480703-1407 Practice effective speaking.
480703-1408 Present a three- to five-minute talk.
480703-1409 Implement a leadership project.
480703-1410* Master a working knowledge of SkillsUSA.
- Describe the meaning of the SkillsUSA emblem.
 - State the SkillsUSA pledge.
 - Describe the duties of a SkillsUSA officer.

STANDARD **Students will understand the need for career planning.**
480703-15

OBJECTIVES

- 480703-1501 Define your future occupation.
480703-1502 Survey employment opportunities.
480703-1503 Report on a trade journal article.
480703-1504 Explore opportunities for advanced training.
480703-1505 Conduct a worker interview.
480703-1506 Contact a professional association.
480703-1507 Explore entrepreneurship opportunities.
480703-1508 Give a talk about your career.
480703-1509 Review career goals.

* SkillsUSA PDP requirements - recommended

STANDARD **Students will understand the importance of employability and work habits.**
480703-16

OBJECTIVES

480703-1601

Develop a list of work standards to follow at school and on the job.

480703-1602

Evaluate your personal ethics.